Postgraduate Certificate
Programming for Geomatics

tech *global university*

Postgraduate Certificate
Programming for Geomatics

- » Modality: **online**
- » Duration: **6 weeks**
- » Certificate: **TECH Global University**
- » Accreditation: **6 ECTS**
- » Schedule: **at your own pace**
- » Exams: **online**

Website: **www.techtitute.com/us/engineering/postgraduate-certificate/programming-geomatics**

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01
Introduction

More and more engineers need to enter the world of computer science applied to the field of GIS, either through the development of web mapping applications, the programming of functionalities and extensions or the acquisition of the basic fundamentals for the implementation of a corporate architecture in a company. This 100% online program provides advanced knowledge to program and therefore be able to use Backend and Frontend. Each of the languages explained in this program are of vital importance to be able to perform the management, manipulation, storage and presentation of data. Understanding the structures and how to connect to databases allows the engineer to get the most out of the data obtained.

Acquire advanced knowledge to program and use Backend and Frontend by studying this 100% online program"

Geomatics Engineering is a transversal discipline, because whoever has studied it has a wide range of possibilities to apply their knowledge and skills in a variety of fields. In this sense, this course seeks to combine knowledge of Geomatics Engineering such as photogrammetry, GIS, geopositioning, etc., with knowledge of Computer Science such as programming.

It is essential to know about programming languages such as Python and R, oriented to the specific needs of the sector, in order to approach different Geomatic projects with professionalism. The practical application of the contents of the program is distinctive, since each software tool or technique developed is commonly used in the working world. In this way, there is a synergy between the skills acquired by the student in the program and the application of these skills in working life.

In addition, this program has the advantage of being 100% online, which will allow the graduate to distribute their study time, not being conditioned by fixed schedules or the need to move to another physical location. All of the content can be accessed at any time of the day, so it's possible to balance working or personal life with academic life.

The **Postgraduate Certificate in Programming for Geomatics** contains the most complete and up-to-date program on the market. Its most notable features are:

- The development of case studies presented by experts in Programming for Geomatics
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- Practical exercises where the self-assessment process can be carried out to improve learning
- Special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

Acquiring specialized knowledge of Programming in Geomatics will allow you to create projects with help businesses to comply with their objectives"

"

You will have innovative teaching resources that will allow you to understand all the ins and outs of the world of Geomatics in a more permanent way"

Apply the latest advances in programming in your daily practice and give your resume a boost in value.

As it is a 100% online program, you will be able to successfully combine it with the rest of your daily activities.
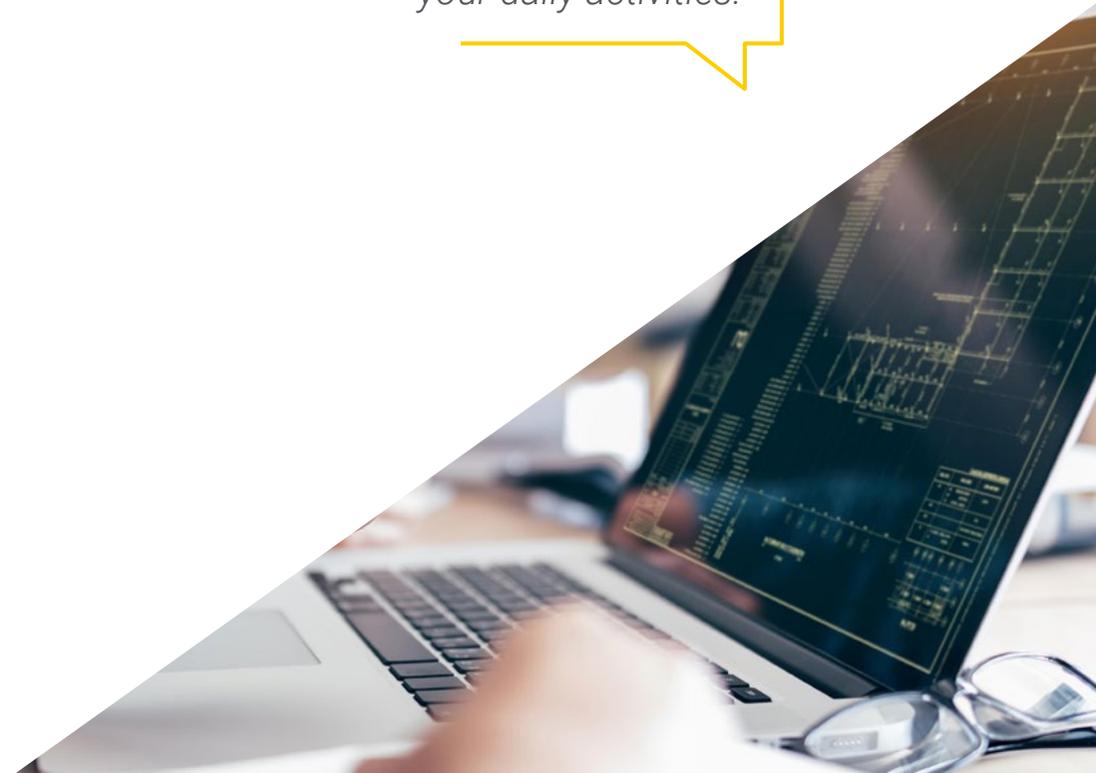
The teaching staff of this program includes professionals from the industry, who contribute the experience of their work to this program, in addition to recognized specialists from reference societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive learning programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

02
Objectives

Given the current high demand for engineers who have mastered the main media integration strategies for the processing, analysis and interpretation of geographic information, TECH has decided to launch a program through which these professionals can get up to date with the latest developments in this field. For this reason, the objective of this course serves as a guide to update their knowledge, providing them with the most exhaustive data and the best academic tools.
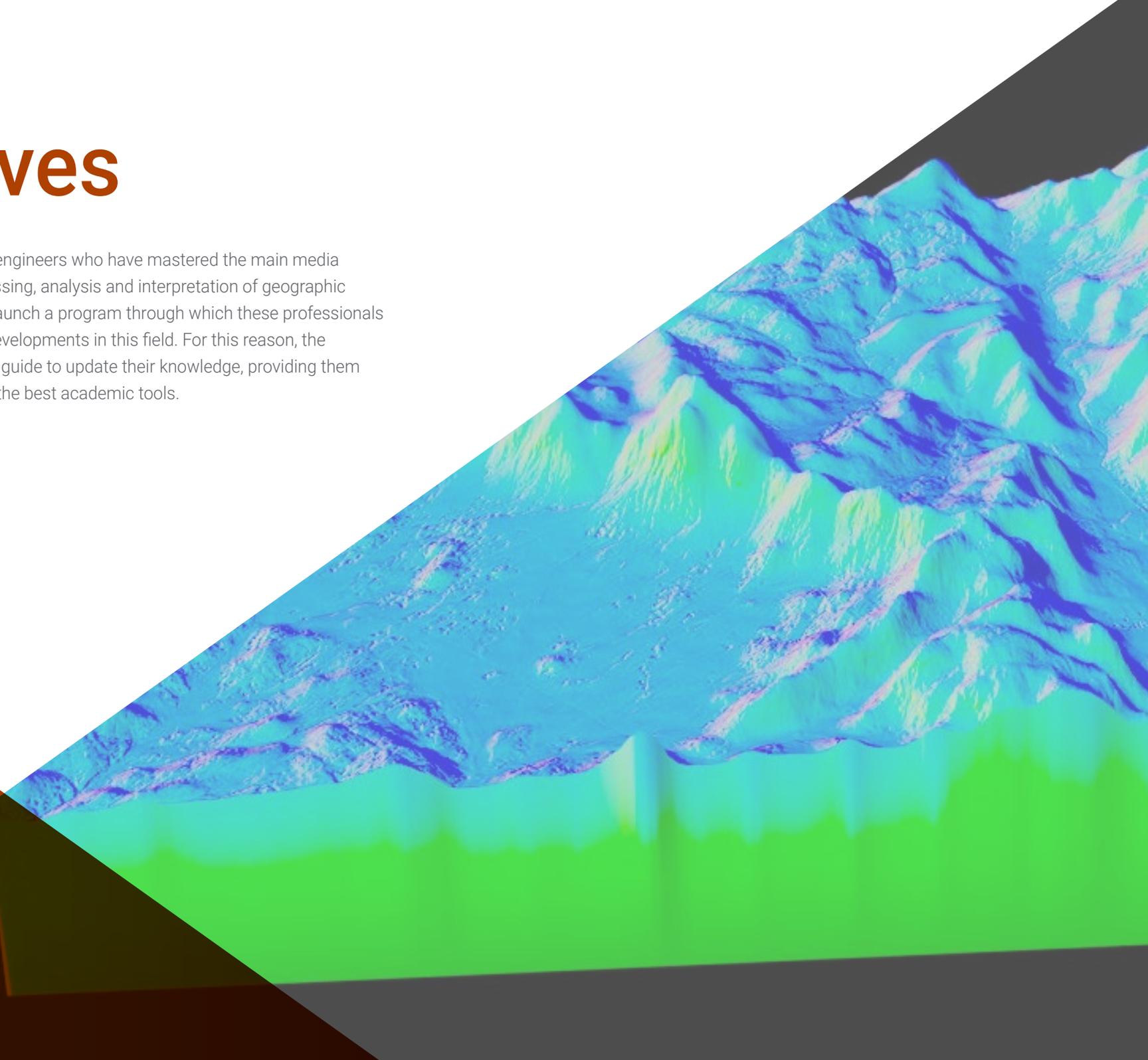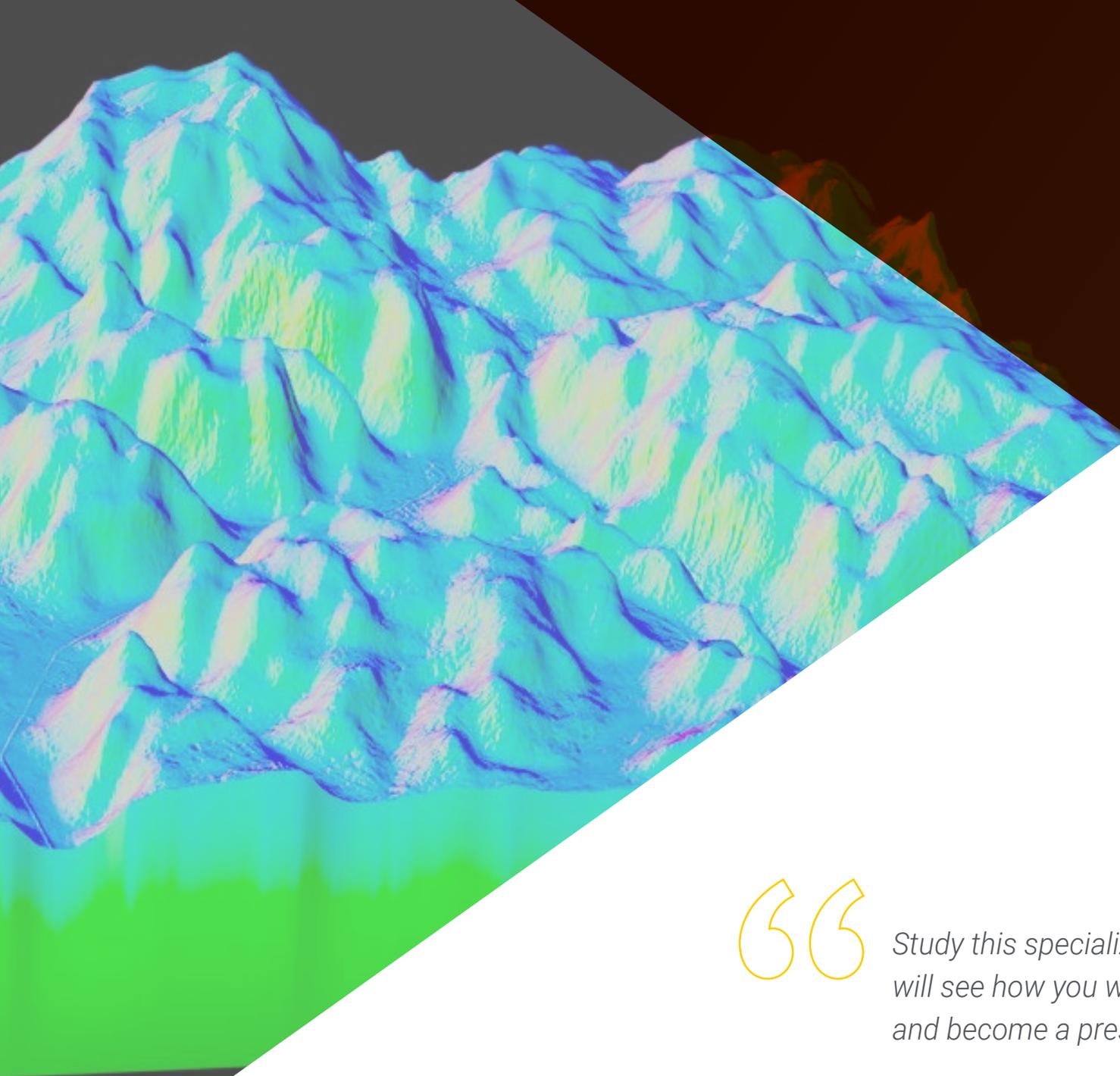
Study this specialization program and you will see how you will grow in your profession and become a prestigious engineer"

General Objectives

- Develop the predominant programming languages in Geomatics
- Examine these languages as a means of connection to databases
- Justify the most appropriate environment for the use of one language or the other
- Evaluate the use of each language and its usefulness in painting maps and presenting other results

TECH provides you with a collection of case studies that will be your main advantage when facing real-life situations"

Specific Objectives

- Configure Php and examine its usage requirements
- Present the stored data in an attractive way
- Analyze control and iteration structures in different languages
- Determine how to connect to databases located on different servers or in the Cloud
- Examine the possibilities of using languages for web applications and mobile devices
- Develop use cases for the different languages
- Generate a source of knowledge to discern which language to use for each project, backend server or desktop client

Course Management

This Postgraduate Certificate is taught by highly prestigious professionals in this field of programming who contribute their years of work experience, as well as the knowledge they have acquired from research in the field, to the program. All this, to provide the engineer with a high-level program, which will enable their practice in work environments, with greater guarantees of success.

You will be sure to learn from the best teaching content thanks to the most complete and up-to-date syllabus on the market that has been developed for TECH"

Management

Mr. Puértolas Salañer, Ángel Manuel

- Application development in .Net environment, Python development, SQL Server database management, system administration. ASISPA
- Topographical Surveyor Study and reconstruction of roads and accesses to towns. Ministry of Defence Embedded with UN forces in Lebanon
- Topographical Surveyor Topography per Project Ministry of Defence
- Topographical Surveyor Georeferencing of the old cadastre of the province of Murcia (Spain). Geoinformation and Systems S.L
- Technical Engineer in Topography from the Polytechnic University Valencia
- Master's Degree in Cybersecurity from MF Business School and the Camilo José Cela University
- Web management, server administration and task development and automization in Python Milcom
- Development of applications in .Net environment. SQL Server management Own software support Ecomputer

Professors

Mr. Flores Caba, Juan Antonio

- Technological Consultant
- Integrator at Alcatel-Lucent in MiViewTv product (Imagenio)
- Systems and Network Manager at Kimia Solutions
- Systems and Network Technician at Qindel for projects at Vodafone
- Systems and Network Manager at Spantel
- Systems and Network Manager in Access to the Spanish Internet Network
- University studies Telecommunication Engineering from the University of Malaga
- Bachelor's Degree studies in Mathematics

04
Structure and Content

The syllabus of the program is structured as a comprehensive tour through each and every one of the concepts required to understand and work in this field. Therefore, through an innovative teaching approach based on the practical application of the contents, the engineer will learn and understand the operation of programming for geomatics, knowing how to design and implement projects in this sense.

"Add value to your professional profile and become a much better prepared professional to work in a variety of environments"

Module 1. Programming for Geomatics

1.1.   Programming for Backend in GIS. PHP Installation and Configuration
 1.1.1. Programming for Backend in GIS
 1.1.2. PHP Installation
 1.1.3. Configuration: The php.ini File
1.2.   Programming for Backend in GIS. Syntax and Control Structures in PHP
 1.2.1. Syntax
 1.2.2. Types of Data
 1.2.3. Control Structures
  1.2.3.1. Simple Selection Structures
  1.2.3.2. Iteration Structures - While
  1.2.3.3. Intervention Structures - For
 1.2.4. Functions
1.3.   Programming for Backend in GIS. Database and PHP Connections
 1.3.1. Connections for MySQL Database
 1.3.2. Connections for PosgreSQL Database
 1.3.3. Connections for SQLite Database
1.4.   Programming in Python for GIS. Installation, Syntax and Functions
 1.4.1. Programming in Python for GIS
 1.4.2. Installation
 1.4.3. Variables
 1.4.4. Expressions and Operators
 1.4.5. Functions
 1.4.6. Work with Strings
  1.4.6.1. Formatting Strings
  1.4.6.2. Arguments
  1.4.6.3. Common Expressions

1.5.   Programming in Python for GIS. Control Structures and Error Treatment
 1.5.1. Simple Selection Structures
 1.5.2. Iteration Structures - While
 1.5.3. Intervention Structures - For
 1.5.4. Error Treatment
1.6.   Programming in Python for GIS. Access to Databases
 1.6.1. MySQL Database Access
 1.6.2. PostgreSQL Database Access
 1.6.3. SQLite Access to Databases
1.7.   Programming in R for GIS. Installation and Basic Syntax
 1.7.1. Programming in R for GIS
 1.7.2. Packet Installation
 1.7.3. Basic R Syntax
1.8.   Programming in R for GIS. Control Structures and Functions
 1.8.1. Simple Selection Structures
 1.8.2. Loops
 1.8.3. Functions
 1.8.4. Types of Data
  1.8.4.1. Lists
  1.8.4.2. Vectors
  1.8.4.3. Factors
  1.8.4.4. Dataframes
1.9.   Programming in R for GIS. Access to Databases
 1.9.1. Connection to Mysql with Rstudio
 1.9.2. Integrating PostgreSQL - PostGIS in R
 1.9.3. Use of JDBC in R
1.10.   Programming in Javascript for GIS
 1.10.1. Programming in Javascript for GIS
 1.10.2. Features
 1.10.3. NodeJS

"Don't miss a unique learning opportunity like the one that TECH offers you, which will catapult your professional career to the next level"

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"

You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.

The student will learn to solve complex situations in real business environments through collaborative activities and real cases.

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

"

Our program prepares you to face new challenges in uncertain environments and achieve success in your career"

The case method is the most widely used learning system in the best faculties in the world. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH, you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically. This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

This program offers the best educational material, prepared with professionals in mind:
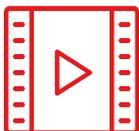
Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Practising Skills and Abilities

They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.

30%

10%

8%

20%

25%

4%

3%
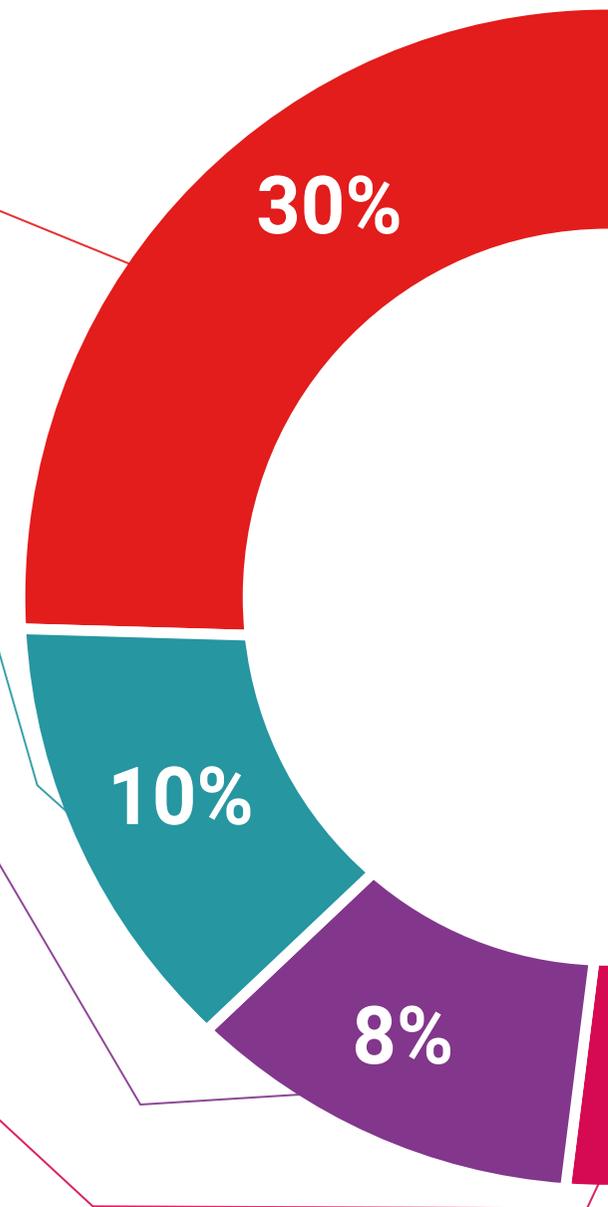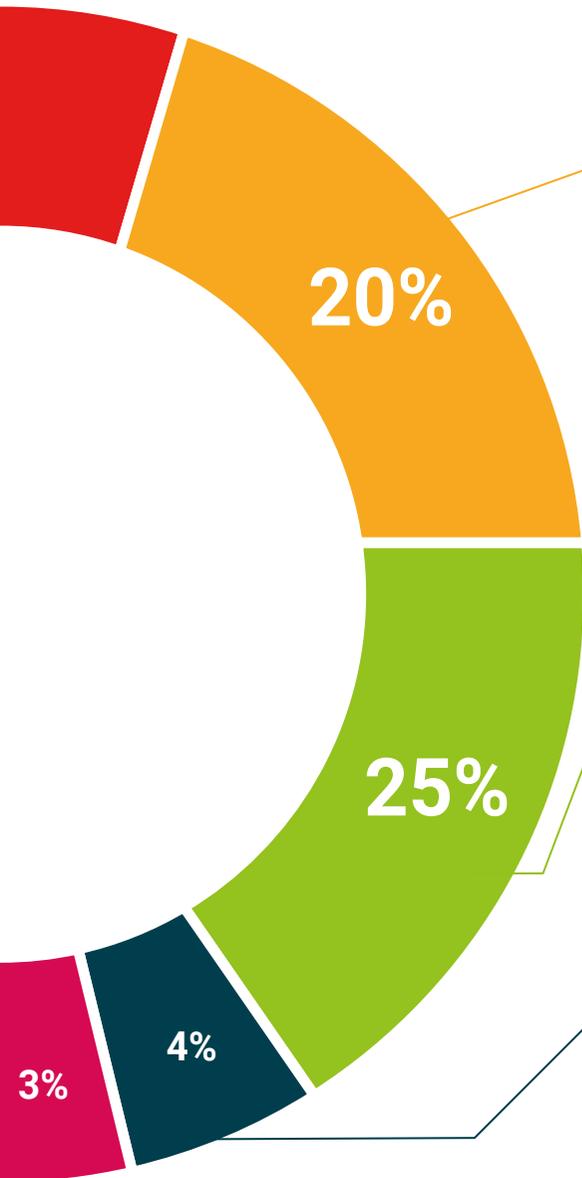
Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.

Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

06
Certificate

The Postgraduate Certificate in Programming for Geomatics guarantees students, in addition to the most rigorous and up-to-date education, access to a qualification issued by TECH Global University.

Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"

This private qualification will allow you to obtain an **Postgraduate Certificate in Programming for Geomatics** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University, is an official European University publicly recognized by the Government of Andorra *(official bulletin)*. Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.
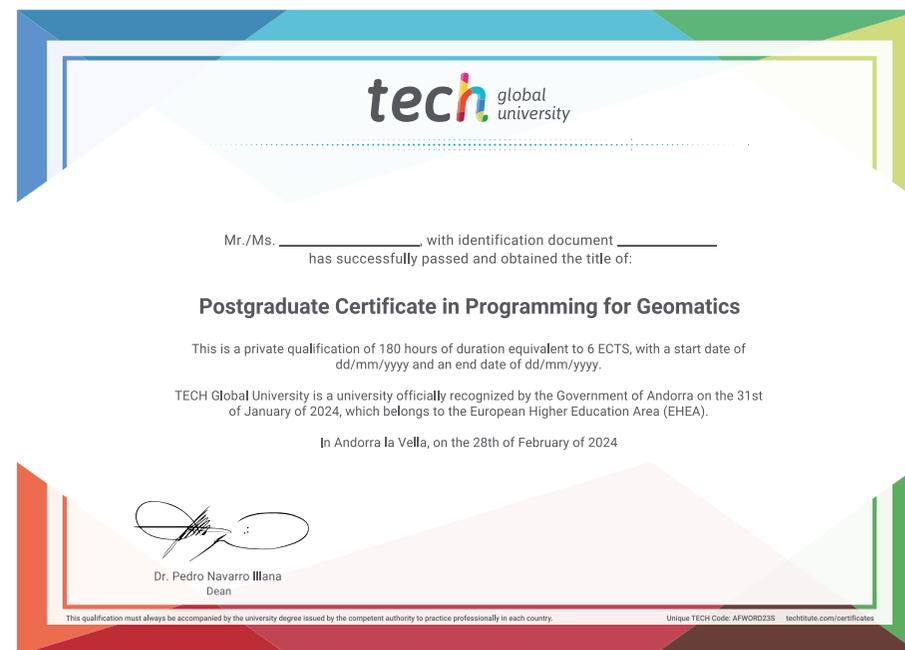
This **TECH Global University** private qualification, is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Programming for Geomatics**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**

tech global university

Mr./Ms. _____, with identification document _____ has successfully passed and obtained the title of:

Postgraduate Certificate in Programming for Geomatics

This is a private qualification of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country.   Unique TECH Code: AFWORD23S   techtitute.com/certificates

*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

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